

CLAIMS

What is claimed is:

1. A copolyester having an inherent viscosity of equal to or greater than about 0.3 dL/g comprising

- 5 (a) about 20 to about 60 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of isophthalic dicarboxylic acid or an alkyl diester thereof,
- 10 (b) about 40 to about 80 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of terephthalic acid, an alkyl diester thereof, 2,6-naphthalene dicarboxylic acid, or an alkyl diester thereof,
- 15 (c) about 10 to about 60 mole percent based on the total moles of dicarboxylic acid or ester, of one or more aliphatic dicarboxylic acids or an alkyl diester thereof,
- (d) about 0.1 to about 5 mole percent based on the moles of total dicarboxylic acid or ester, of one or more alkali or alkaline earth metal salts of 5-sulfoisophthalic dicarboxylic acid or an alkyl diester thereof,
- 20 (e) about 90 to 100 mole percent based on the total amount of glycols, of one or more aliphatic glycols, and
- (f) 0 to about 10 mole percent based on the total amount of glycols of one or more of di(ethylene glycol) and tri(ethylene glycol).

25 2. A copolyester as claimed in claim 1, which comprises about 35 to about 89.9 mole percent of total aromatic dicarboxylic acids or esters based on the total moles of dicarboxylic acids or ester.

 3. A copolyester as claimed in claim 1, which is not formed from neopentyl glycol.

30 4. A copolyester as claimed in claim 1, wherein (e) is selected from the group consisting of ethylene glycol, 1,3-propane diol, 1,4-butanediol, 1,6-hexanediol, and a mixture of two or more thereof.

5. A copolyester as claimed in claim 1, which is not soluble in water, but is soluble in polar solvents.

6. A copolyester as claimed in claim 1, which is soluble in one or more of tetrahydrofuron, dimethyl acetamide, N-methyl pyrrolidone, or dimethyl sulfoxide.

7. A copolyester as claimed in claim 1, further formed from a polyfunctional branching agent.

8. A shaped article formed from a copolyester as claimed in claim 1.

9. A coating, film, or adhesive formed from a copolyester as claimed in claim 1.

10. A copolyester as claimed in claim 1, which consists essentially of said (a), (b), (c), (d), and (e).

11. A method of improving the biodegradability and polar solvent solubility of a polyester, comprising forming the polyester from

(a) about 20 to about 60 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of isophthalic dicarboxylic acid or an alkyl diester thereof,

(b) about 40 to about 80 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of terephthalic acid, an alkyl diester thereof, 2,6-naphthalene dicarboxylic acid, or an alkyl diester thereof,

(c) about 10 to about 60 mole percent based on the total moles of dicarboxylic acid or ester, of one or more aliphatic dicarboxylic acids or an alkyl diester thereof,

(d) about 0.1 to about 5 mole percent based on the moles of total dicarboxylic acid or ester, of one or more alkali or alkaline earth metal salts of 5-sulfoisophthalic dicarboxylic acid or an alkyl diester thereof,

(e) about 90 to 100 mole percent based on the total amount of glycols, of one or more aliphatic glycols, and

- (f) 0 to about 10 mole percent based on the total amount of glycols of one or more of di(ethylene glycol) and tri(ethylene glycol).

12. A method of forming a film or coating that comprises solvent
5 casting or solvent coating a polyester comprising:

- (a) about 20 to about 60 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of isophthalic dicarboxylic acid or an alkyl diester thereof,
- 10 (b) about 40 to about 80 mole percent based on the total moles of aromatic dicarboxylic acid or ester, of one or more of terephthalic acid, an alkyl diester thereof, 2,6-naphthalene dicarboxylic acid, or an alkyl diester thereof,
- 15 (c) about 10 to about 60 mole percent based on the total moles of dicarboxylic acid or ester, of one or more aliphatic dicarboxylic acids or an alkyl diester thereof,
- 20 (d) about 0.1 to about 5 mole percent based on the moles of total dicarboxylic acid or ester, of one or more alkali or alkaline earth metal salts of 5-sulfoisophthalic dicarboxylic acid or an alkyl diester thereof,
- (e) about 90 to 100 mole percent based on the total amount of glycols, of one or more aliphatic glycols, and
- 25 (f) 0 to about 10 mole percent based on the total amount of glycols of one or more of di(ethylene glycol) and tri(ethylene glycol).